

Patent claims

1. A monostable ferroelectric active matrix display, containing a liquid crystal layer in the form of a monodomain with an unambiguously defined direction of the normal z to the layer of the smC^* phase, wherein the normal z to the layer and the preferential direction n of the nematic or cholesteric phase (N^* phase) form an angle of more than 5° .

2. The active matrix display as claimed in claim 1, wherein the angle between the normal z to the layer of the smC^* phase and the preferential direction n of the nematic or cholesteric phase (N^* phase) lies in a range of from 0.5 times to 1.0 times the smC^* tilt angle.

3. The active matrix display as claimed in claim 1 or 2, wherein the ferroelectric liquid crystal layer has a phase sequence of

$$I^*-N^*-smC^*$$

where there may be an smA^* phase having a range of existence of at most $2^\circ C$ between the N^* phase and the smC^* phase.

4. The active matrix display as claimed in one of claims 1 to 3, wherein the spontaneous polarization of the ferroelectric liquid crystal phase is less than 15 nC/cm^2 .

5. The active matrix display as claimed in one of claims 1 to 4, wherein, in the liquid crystal layer, the length of the chiral-nematic or cholesteric pitch in a temperature range of at least $2^\circ C$ above the transition to the smectic phase is more than $50 \mu m$.

6. A process for producing active matrix displays as claimed in one of claims 1 to 5, in which the liquid crystal layer is introduced into the interspace between a rubbed upper substrate plate and a rubbed lower substrate plate of the active matrix display, the rubbing directions on the

upper and lower substrate plates being essentially parallel, and the liquid crystal phase is cooled from the isotropic phase, an electric DC voltage being applied to the display at least during the $N^* \rightarrow smC^*$ or $N^* \rightarrow smA^* \rightarrow smC^*$ phase transition.

7. An active matrix display, producible according to the process as claimed in claim 6.

8. The use of active matrix displays as claimed in one of claims 1 to 5 and 7 in the TV, HDTV or multimedia field or in the field of information processing.

9. The use as claimed in claim 8 in Notebook PCs, personal digital assistants and desktop monitors.